Printed Pages : 7 ECS101

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 1601 Roll No.

B.Tech

(SEM I) ODD SEMESTER THEORY EXAMINATION 2009-10

COMPUTER CONCEPTS & PROGRAMMING IN C

Time : 3 Hours] *[Total Marks : 100*

Note : *(1) This question paper consists of three sections. Section A contains objective type questions and is of 20 marks. Section B consists of short answer type questions which is of 30 marks and Section C contains long answer type questions of total 50 Marks.*

(2) Your answers for Section B and C should be precise and to the point.

(3) Answer to the questions of each section must be done at one place in your answer books.

(4) You are required to attempt all the questions.

SECTION - A

1 There are total 20 multiple choice questions. Only one of the answer out of given four choices is correct. Write the correct answer. **10×1=10**

(i) In evaluation an expression a + b * C, which one of the following is correct

(a) + has higher precedence over *

(b) * has higher precedence over +

(c) both * and + have the same precedence

(d) The order of evaluation does not matter

(ii) A Stack is

(a) LIFO (Last in First out)

(b) FIFO (First in First out)

(c) LILO (Last Last out)

(d) None of the above

(iii) An array can store

(a) Finite data of similar type

(b) Infinite data of similar type

(c) Finite data of mix type

(d) All of the above

(iv) How many bytes of storage an unsigned short integer in C language would require

(a) 2

(b) 4

(c) 6

(d) 8

(v) Decimal number 10 can be represented in unary (a number system with base 1) as

(a) 1010

(b) 64

(c) A

(d) None of the above

(vi) If k = 5 then the value of variable x after the execution of a C statement x = k ++ will be

(a) 5

(b) 6

(c) randomly any one of the above

(d) value of x will not depend on k

(vii) Typically an operating system

(a) manages all the hardware resources of the computer

(b) compiles a high-level program

(c) Both (a) and (b)

(d) None of the above

(viii) For a C program code for (i=0; i ≤ 10; i ++) {A}; A will run

(a) 10 times

(b) 11 times

(c) 12 times

(d) None of the above

(ix) Which of the following is not a functional programming language

(a) SML

(b) HASKELL

(c) C

(d) LISP

(x) A pointer in C language

(a) is a address of some location

(b) is useful in describing linked list

(c) can be used to access the elements of an array

(d) all of the above.

2 State whether the following statements are True or False : 5×1=5

(i) Normal binary operators like + and - can be combined with assignment operator = to form new operators in C Language.

(ii) A compiler translates a High-level program into a machine understandable language.

(iii) An algorithm might never terminate.

(iv) In C language pointers can be used as a function argument.

(v) MS-WORD may be classified as an application software.

3 Fill in the blanks. 5×1=5

(i) _____ is used to open a file.

(ii) _____ is used as a statement terminator in C.

(iii) The operator && is an example for _____ operator.

(iv) A function is called _____ when it calls itself.

(v) An Editor can be classified as _____ software.

SECTION - B

4 There are total six questions in this section. 6×5=30
Attempt all questions :

(a) (i) Write a C program to swap two integer variables without using third variable.

(ii) What is the difference between initialization and assignment of a variable.

(b) (i) Differentiate between WHILE...DO and DO...WHILE loops.

(ii) Write a recursive C program to calculate the factorial of a given integer.

(c) (i) Draw a flow chart to sort three integers.

(ii) What is dynamic memory allocation? Explain malloc function.

(d) (i) Write a C program to sequentially search a given integer element from a given list of numbers.

(ii) What is the purpose of using Structures in C? Explain with the help of a suitable example.

(e) (i) Find the value of X in the equation $(1230)_4 = X_6$.

(ii) Draw the functional block diagram of a Digital Computer and discuss its components in brief.

SECTION - C

5 This section contains SEVEN programming questions. Attempt any FIVE questions. All answers must contain Flow chart/Algorithm for your program logic : **10×5=50**

(a) Write a C program to read in 10 integer numbers and print their average, minimum and maximum numbers.

(b) Write a C program to add, multiply two N × N matrix.

(c) Write a simple database program in C which stores personal details of 100 persons such as Name, Date of Birth, Address, Phone number etc.

(d) Write a C program which reverses the digits of the integer input given to it. For example an input 65367 is outputted as 76356.

(e) Write a C program to calculate the sum of the following series upto 50 terms

SUM = $-1^3 + 3^3 - 5^3 + 7^3 - 9^3 + 11^3 - \ldots$

(f) Write a C program to print n^{th} Fibonacci number.

(g) Write a C program to arrange given n strings in lexicographical order.
